CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)

Matthew G. Lee

Project Number

36181

Project Title

The Future of Food: The Effects of Red Abalone on Spirulina's Nutrient Concentration

Abstract

Objectives/Goals

The objective was to measure the nutrient concentration of Spirulina cultures fed with different food types (f/2 and red abalone feces). I chose to measure mono-unsaturated and saturated fatty acid concentration since in previously researched studies I found a correlation to chlorophyll a concentration, a value easily determined.

Methods/Materials

I had 1 control (f/2) and 2 treatment (red abalone feces) cultures over the course of my experiment. Cultures were grown in controlled environments and data collection of chlorophyll a concentration was accomplished through the use of a spectrophotometer and centrifugation.

Results

Although there was variation between initial and end behavior, there was a clear negative trend for the control and an end result of the treatment group having a chlorophyll a concentration about 75% of the control. Overall however, there was highly erratic behavior.

Conclusions/Discussion

I concluded that the abalone feces are not as effective of a food source as f/2 is. Due to the large variance of results, further protocols should be devised to prevent population crashing and restricted oxygen supplies, two possible discrepancies that affected my results.

Summary Statement

I showed that red abalone feces is not as effective of a food source as the commercially used nutrient when comparing monounsaturated and saturated fatty acid concentrations.

Help Received

I conducted all data collection and setup by myself. I performed the experiment at Cabrillo Marine Aquarium and received help from their Staff and their Young Scientist's program. I also received help from my science research teacher, Mrs. Munoz, who oversaw the entire process.